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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/541,352	07/05/2005	Gerhard Jonke	2002P00148WOUS	8235
28204 7590 01/23/2007 SIEMENS SCHWEIZ AG I-47, INTELLECTUAL PROPERTY ALBISRIEDERSTRASSE 245 ZURICH, CH-8047 SWITZERLAND			EXAMINER CABRERA, ZOILA E	
			ART UNIT 2125	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/23/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/541,352

Applicant(s)

JONKE ET AL.

Examiner

Zoila E. Cabrera

Art Unit

2125

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on Amendment and RCE of 27 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-18 are presented for consideration.

#### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 7-8, 14-18 rejected under 35 U.S.C. 103(a) as being unpatentable over **Yoriki et al. (US 6,640,431 B1)** in view of **Trzeciecki (US 2003/0059194 A1)**.

Regarding claim 1, **Yoriki** discloses a multiple insertion head for mounting components onto substrates, comprising a carrier arranged such that it can rotate about a rotational axis (Fig. 2; Col. 1, lines 18-23), and a plurality of receiving tools arranged such that they can be moved in a mounting direction at an angle to the rotational axis (fig. 2, element 90); the receiving tools being arranged on the carrier and arranged so as to receive the components (Col. 1, line 59 to Col. 2, line 7), such that each receiving tool is provided with at least one of an active drive and sensors (Fig. 14, drives and sensors).

As for claims 2-3, 6, 7-8, 14-18, **Yoriki** further discloses,

2. Multiple insertion head according to claim 1, with each receiving tool having its own rotary drive by means of which received components can in each case be rotated about a tool axis arranged at an angle to the rotational axis (D) of the multiple insertion head (Fig. 14, nozzle rotating servo motor).

3. The multiple insertion head according to claim 1, wherein each receiving tool comprises a vacuum generator (Col. 1, lines 60-61, suction nozzle).

6. The multiple insertion head according to claim 1, further comprising a blast air vacuum device arranged in a receiving mounting position of one of the receiving tools, the vacuum device further arranged such that therein components can be received or mounted by means of the receiving tool located in the receiving mounting position, the receiving tool being connected such that an additional vacuum can be applied or generated to the receiving tools for receiving the components or in addition a blast air impulse while mounting the components in the receiving tool located in the receiving mounting position (Col. 1, lines 60-51, i.e. one suction nozzle holding, by suction, an EC; Col. 16, lines 5-9).

7. The multiple insertion head according to claim 1, wherein each receiving tool comprises a tool shaft embodied as a hollow shaft running coaxially to the tool axis and a rotary sensor arranged so as to detect an angle position of the tool shaft (Col. 16, lines 19-34 and lines 53-61).

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8. The multiple insertion head according to claim 7, wherein each tool shaft comprises a vacuum pipettes at a distal end range (Col. 16, lines 6-15).

14. The multiple insertion head according to claim 1, wherein the carrier comprises at least one control device arranged so as to control and/or regulate the active drives and/or sensors (Fig. 14).

15. The multiple insertion head according to claim 14, wherein the control unit comprises at least one digital signal processor by means of which one or a plurality of the active drives or sensors can be controlled (Fig. 14).

16. The multiple insertion head according to claim 1, further comprising , a linear motor arranged such that a receiving tool found in the receiving mounting position can be moved in the mounting direction provided that the linear motor is engaged in the receiving tool (Fig. 14).

17. The multiple insertion head according to claim 16, further comprising an engaging element provided in each receiving tool so as to engage in an engaging piece of the runner of the linear motor (Col. 18, lines 42-46 and lines 64-66).

18. The multiple insertion head according to claim 16, further comprising an additional retracting means interacting with the linear motor by means of which a runner of the

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linear motor is pretensioned by means of a spring tension against the force of gravity and in which the pretensioning is compensated for by compressed air when the insertion head is in operation (Col. 18, lines 42-62).

Yoriki discloses the limitations of claim 1 above but fails to disclose that each receiving tool is configured to be moved and controlled individually, and wherein components can be mounted independently of external actuators. However, **Trzeciecki** discloses a multi axis component actuator wherein each receiving tool is configured to be moved and controlled individually, and wherein components can be mounted independently of external actuators (Fig. 6, i.e., components holders 31, linear actuators 22; [0038]-[0039]). Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the component mounting apparatus of **Yoriki** with the component actuator of **Trzeciecki** because it would provide active alignment of components due to its dynamic nature and compensation of variations in alignment due to temperature changes, epoxy hardening, solder expansion, fusing processes, and other effects resulting during a process of affixing aligned components one to another. Furthermore, such an alignment system provides for improved alignment speed as well significant cost reduction over conventional alignment systems (**Trzeciecki**, [0042]).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yoriki et al. (US 6,640,431 B1)** and **Trzecieski**, and further in view of **Gieskes et al. (US 2004/0074085 A1)**.

**Yoriki** discloses the limitations of claims 1 and 3 above but fails to disclose the limitations of claims 4-5. However, **Gieskes** discloses such limitations as follows:

4. The multiple insertion head according to claim 3, wherein the vacuum generators comprises a Venturi tubes and the carrier comprises a hollow shaft running coaxially to the rotational axis to which the receiving tools are fitted such that compressed air can be conveyed through the hollow shaft of the carrier to the Venturi tubes ([0026]).

5. The multiple insertion head according to claim 3, wherein the Venturi tubes is connected to a regulator to control pressure ([0028]-[0029]).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Yoriki and Trzecieski** with the integrated air flow control for a pick and place spindle assembly as taught by **Gieskes** because it would provide an improved system by minimizing the time required for the vacuum for air pressure to be applied to the nozzle tip ([0011]).

4. Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Yoriki et al. (US 6,640,431 B1)** and **Trzeciecki**, and further in view of **Asai et al. (US 5,588,195)**.

**Yoriki** discloses the limitations of claim 1 above but fails to disclose the limitations of claims 9-13. However, **Asai** discloses such limitations as follows:

9. The multiple insertion head according to claim 1, further comprising a rotationally symmetrical energy and data transmission device arranged between the carrier and a housing of the multiple insertion head, the transmission device arranged such that at least one of active drives and sensors can be supplied with energy and by which the data from the sensors and the data to the sensors can be transmitted with a first transmitter part being permanently fitted to the housing of the multiple insertion head and a second transmitter part being permanently fitted to the carrier in such a way that it can rotate (Abstract; Fig. 13; Col. 2, lines 55-67).

10. The multiple insertion head according to claim 9, wherein the transmission device comprises at least one slip ring (Col. 2, lines 2-9).

11. The multiple insertion head according to claim 9, wherein the data transmission device comprises one pair of electromagnetic transmitters and one pair of capacitive transmitters arranged rotationally symmetrical around the rotational axis of the multiple insertion head and by means of which there is non-contact transmission of both the energy and the data (Col. 3, line 40 to Col. 4, lines 6).



12. The multiple insertion head according to claim 11, wherein the capacitive transmitter, comprises a plate-shaped antenna in the first transmitter part and in the second transmitter part the first transmitter part the electromagnetic transmitter comprises a circular magnetically conductive body with a u-shaped cross section open in the direction of the carrier and a circular magnetically conductive body in the second transmitter part comprising a rectangular cross section which is arranged in such a way in the opening of the first transmitter part that the direction of the magnetic field used for the transmission of energy is at right angles to the direction of the electrical field used for the transmission of data (Fig. 8, element 316).

13. The multiple insertion head according to claim 9, comprising at least one polished disk arranged on the housing and on the carrier such that the polished disks are arranged immediately next to each other so that compressed air and a vacuum can be applied from external vacuum generators to the active drives of the carrier (Col. 9, lines 30-44).

Therefore, it would have been obvious to a person of the ordinary skill in the art at the time the invention was made to combine the teachings of **Yoriki and Trzecieski** with the electronic component mounting apparatus of **Asai** because it would provide an improved mounting apparatus with a high durability (Col. 1, lines 6-10; Col. 2, lines 25-31).

***Response to Arguments***

5. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.


***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning communication or earlier communication from the examiner should be directed to Zoila Cabrera, whose telephone number is (571) 272-3738. The examiner can normally be reached on M-F from 8:00 a.m. to 5:30 p.m. EST (every other Friday).

If attempts to reach the examiner by phone fail, the examiner's supervisor, Leo Picard, can be reached on (571) 272-3749. Additionally, the fax phones for Art Unit 2125 are (571) 273-8300. Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist at (703) 305-9600.

Zoila Cabrera  
Primary Examiner  
1/22/07

  
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